

ANNUAL REPORT: June 1, 2009 – May 31, 2010
(i.e., Summer 2009, AY 2009-2010)
DEPARTMENT OF ENVIRONMENTAL AND FOREST BIOLOGY
SUNY-ESF

NAME: Jacqueline L. Frair

I. INSTRUCTIONAL ACTIVITIES

1. Regular Course Offerings

	Course No.	Title	Credit Hrs.	No. Students	No. of Lab. Sections
SUMMER:	EFB 496	“Wildlife Field Techniques”	3	15	none
FALL:	EFB 796	“Tools of the Ecological Detective” (co-taught with Jesse Brunner)	3	9	1
SPRING:	EFB 491	“Applied Wildlife Science”	3	31	1

NOTE: PLEASE INDICATE WHICH COURSE(S) HAD A SERVICE-LEARNING COMPONENT AND BRIEFLY EXPLAIN THE NATURE OF THIS COMPONENT. For examples of service-learning in courses, see: <http://www.esf.edu/students/service/courses.htm>. Service-learning is a form of structured experiential education in which students engage with the community to be active learners, to enrich their sense of civic responsibility, and to explore practical application for course content. Faculty oversight, reflective thinking, and reciprocity are key components of service-learning. EFB courses currently listed with service-learning components include: 416/6/1, 486, 518, 521, 532, 446/646.

2. Non-Scheduled Course Offerings (e.g., 496, 899, 999)

Course No.	Title	Credit Hrs.	No. Students
EFB 420 (fall)	Internship / EFB	3	2
EFB 420 (spr)	Internship / EFB	3	3
EFB 495	Undergrad teaching experience	3	3
EFB 498 (fall)	Research Problems / EFB	3	5
EFB 498 (spr)	Research Problems / EFB	3	2
EFB 796	Landscape Ecology Teaching Exp.	1	1
EFB 899 (fall)	Masters Thesis Research	1	2
EFB 899 (spr)	Masters Thesis Research	2-9	2
EFB 999 (fall)	Doctoral Thesis Research	9	1
EFB 999 (spr)	Doctoral Thesis Research	9	1

3. Continuing Education and Extension (short courses, workshops, etc.)

None this year

4. Guest Lecture Activities

<u>Course No.</u>	<u>Title</u>	<u>No. of Lectures</u>
ESF 300	Introduction to GIT	1 (Oct 2009)
EFB 797	Core graduate seminar	1 (Nov 2009)
EFB 132	Freshman orientation seminar	1 (Nov 2009)

II. **STUDENT ADVISING**

A. Number of undergraduates for whom you are the student's official advisor 29 and unofficial advisor indeterminate

B. Graduate Students: (Name, degree sought, starting date, month & year; if a degree was completed, please give date and full citation for the thesis or dissertation).

MAJOR PROFESSOR

Michelle Peach, Ph.D., Started August 2009 with Bill Porter, transferred to me in May 2010

Scott Warsen, MS, Started January 2010

Andrew MacDuff, Started August 2009

Sara Hansen, MS, Started August 2009

Robin Holevinski, Ph.D., Started August 2007, passed candidacy exam 23 April 2010

Christina Boser, MS, Started May 2007, defended 8 Dec 2009

Boser, C.L. 2009. Diet and hunting behavior of coyotes in agricultural-forest landscapes of New York State. MS Thesis, SUNY College of Environmental Science and Forestry, 117 pp.

CO-MAJOR PROFESSOR

MEMBER, STEERING COMMITTEE (other than those listed above)

Michael Fishman, MS (MP James Gibbs)

Angela Sirois, MS (MP James Gibbs)

Brigham Whitman, MS (MP Bill Porter)

Melanie Carter, MS (MP Jesse Brunner)

Anna Harrison, MS (MP John Stella)

David Williams, Ph.D. (MP Bill Porter)

Megan Skrip, MS (defended 21 April 2010; MP Bill Porter)

Amy Dechen Quinn, Ph.D. (defended 11 May 2010; MP Bill Porter)

Catherine Haase, MS (defended 13 May 2010; MP Brian Underwood)

Samuel Quinn, MS (defended Dec 2009; MP James Gibbs)

Matthew Smith, MS (defended 4 Dec 2009; MP Bill Porter)

CHAIRMAN OR READER ON THESIS EXAMS, ETC.

Ph.D. examiner: Stephanie Eby, Syracuse University (MP Mark Ritchie), dissertation title "Fire and the reasons for its influence on mammalian herbivore distributions in an African savanna ecosystem", May 2010

III. **RESEARCH COMPLETED OR UNDERWAY**

A. Departmental Research (unsupported, boot-legged; title - % time spent)

- GPS collar workshop – review papers (unsupported, 2% AY)
- Coyote genetics study (unsupported, 2% AY)
- Central East Slopes Elk and Wolf Study (ongoing collaboration, unsupported, 7% AY)
- Caribou Movements and Habitat Selection Study (ongoing collaboration, unsupported, 2% AY)
- Mentor Ossining High School student (Kim Snyder) for research project on coyote diets (1% AY)
- UMEB mentor to Tim McCoy for marten diet study (1% AY)

B. 1. Grant-supported Research (source, subject, amount - total award and current year, award period starting and ending dates; list graduate research assistants supported by each grant)

“Non-harvest based assessment of river otter populations in New York”, Apr 2010-Mar2012, source NYS-DEC; \$160,538, PI: Frair, partial support for Andrew MacDuff, MS student (whose annual salary is paid by NYS-DEC separately).

“Monitoring populations of elusive forest wildlife: a modern approach using noninvasive genetic techniques”, 2009-2011, source USFS McIntire-Stennis Program, \$50,393, PIs: J. Frair and C. Whipps, supports R. Holevinski, Ph.D. student.

“Conservation Research on the Chittenango Ovate Amber Snail”, 2007-09, source US Fish & Wildlife Service, \$62,020, 2007-2010, PIs: J. Frair and J. Gibbs; partial support for S. Campbell, post-doc.

“Population Status and Foraging Ecology of Eastern Coyotes”, 2007-2012, source NYS-DEC, \$670,000, PIs: J. Frair and J. Gibbs; partial support for S. Hansen, MS student.

Additional graduate student support procured this year:

\$5,900, S. Hansen, source Edna Bailey Sussman Foundation (summer 2010)

\$2,000, S. Hansen, source American Wildlife Conservation Foundation (summer 2010)

\$15,000, S. Warsen, source Grober Graduate Research Fellowship (summer 2010)

2. Research Proposals pending (include information as in B.1., above).

“Evolving niche of the ‘coy-wolf’ in northeastern forests and implications for biodiversity”, 2010-2012, source Northeastern States Research Cooperative, \$40,046, PIs: J. Frair and M. Teece; partial support for S. Warsen, MS student.

3. Research Proposals submitted, but rejected (include information as in B.1, above)

“Monitoring of the endangered Chittenango Ovate Amber Snail”, 2010, source US Fish and Wildlife Service, \$21,000, PIs: J. Frair and J. Gibbs.

IV. PUBLICATIONS (Full bibliographic citation, i.e., do not use "with Jones," or "Jones, et al."; please list only publications published, in press, or actually submitted during this reporting period --- **do not list manuscripts in preparation**).

A. Refereed Publications

Frair, J., Fieberg, J., Hebblewhite, M., Cagnacci, F., DeCesare, N. and Pedrotti, L. (in press) Resolving issues of imprecise and habitat-biased locations in ecological analyses using GPS telemetry data. Philosophical Transactions of the Royal Society B.

Merrill, E., Sand, H., Zimmerman, B., McPhee, H., Webb, N., Hebblewhite, M., Wabakken, P. and Frair, J. (in press) Building a mechanistic understanding of predation with GPS-based movement data. *Philosophical Transactions of the Royal Society B*.

Fieberg, J., Boyce, M.S. Matthiopoulos, J., Hebblewhite, M. and Frair, J. (in press) Correlation and studies of habitat selection: problem, red herring, or opportunity? *Philosophical Transactions of the Royal Society B*.

Morales, J.M., Moorcroft, P. R., Matthiopoulos, J., Frair, J. L., Kie, J. G., Powell, R. A., Merrill, E. H. and Haydon, D. T. (in press) Towards mechanistic links between animal movements and population dynamics. *Philosophical Transactions of the Royal Society B*.

Beyer, H.L., Haydon, D.T., Morales, J.M., Frair, J., Hebblewhite, M., Merrill, E.H., Boyce, M.S., Mitchell, M. and Matthiopoulos, J. (in press) Habitat preference: understanding use versus availability designs. *Philosophical Transactions of the Royal Society B*.

Van Moorter, B., Visscher, D. R., Jerde, C. L., Frair, J. L. and Merrill, E. H. (2010) Identifying movement states from location data using cluster analysis. *Journal of Wildlife Management*, 74(3), 588-594.

Wolf, M., Frair, J., Merrill, E. and Turchin, P. (2009) The attraction of the known: the importance of spatial familiarity in habitat selection in wapiti (*Cervus elaphus*). *Ecography*, 32, 401-410.

B. Non-refereed Publications

J. Frair, E. Merrill, J. Allen, and M. Boyce. 2010 (Spring). Experience counts: improving translocation success of elk in Alberta. Fair Chase, the official publication of the Boone and Crockett Club, Missoula, MT.

Zuckerberg, B., Huettmann, F., and Frair J. (in press) Data management as a scientific foundation for reliable predictive modeling. Chapter 3 in Drew, A., Huettman, F., and Wiersma, Y., eds., *Predictive Modeling in Landscape Ecology*. Springer Verlag, NY.

C. Papers Presented at Science Meetings (give title, date, occasion, and location)

“The dividing line: differentiating two stocks of coyotes in New York State”, Frair, J., Whipps, C., Kretzer, A., and Holevinski, R. Northeast Fish and Wildlife Association Meeting, Apr 2010, Boston, MA.

“The dividing line: differentiating two stocks of coyotes in New York State”, Frair, J., Whipps, C., Kretzer, A., and Holevinski, R. National meeting of The Wildlife Society, Sep 2009, Monterey, CA.

Papers delivered by coauthors:

“Wolf and industry influences on elk habitat effectiveness in the eastern Canadian Rockies”, J. Frair, E. Merrill, M. Boyce, N. Webb, M. Hebblewhite, D. Visscher, J. Allen. NICDS Workshop, Mar 2010, Montreal, Canada.

“Foraging ecology of coyotes in New York State” (poster presentation), R. Holevinski, J. Frair, G. Batcheller, and P. Jensen. Annual meeting of the NY State Chapter of The Wildlife Society, Mar 2010, Alexandria Bay, NY. ** won best graduate student poster **

“Using site occupancy and detection probabilities to estimate eastern coyote populations”, R. Holevinski, J.

Frair, J. Gibbs, C. Boser, and G. Batcheller. National meeting of The Wildlife Society, Sep 2009, Monterey, CA.

“Coyote foraging ecology and selection for white-tailed deer fawns”, C. Boser, J. Frair, R. Holevinski, and G. Batcheller. National meeting of The Wildlife Society, Sep 2009, Monterey, CA.

“Coyote foraging ecology and selection for white-tailed deer fawns”, C. Boser, J. Frair, R. Holevinski, and G. Batcheller. Ecological Society of America Annual Conference, Aug 2009, Albuquerque, New Mexico.

“Thresholds in landscape connectivity and mortality risks for elk in response to growing road networks”, J. Frair, E. Merrill, H. Beyer, and J. Morales. The 8th Western States and Provinces Deer and Elk Workshop, 2009, Spokane, WA.

D. Public Service Presentations (lectures, seminars, etc. to and for the public; give group or occasion, date(s), and attendance)

Finger Lakes Institute at Hobart and William Smith Colleges (Oct 2009, ~30 attendees, all high school science teachers)

The following public presentations on coyote research in my lab were given by R. Holevinski:

- Huntington Lecture Series, Adirondack Ecological Center (Aug 2009)
- Richmondville Historical Society (Oct 2009)
- Tioga County Trappers Association (Oct 2009)
- Finger Lakes Community College Wildlife Society (Dec 2009)
- National Wild Turkey Federation, NY Chapter (Jan 2010)
- Paul Smith’s College Fish and Wildlife Seminar Series (Feb 2010)
- Catskills Institute for the Environment – SUNY Ulster (Mar 2010)

Poster produced for public meetings on deer management organized by NYS Department of Environmental Conservation, “Foraging ecology of coyotes in New York State” by R. Holevinski, J. Frair, G. Batcheller, and P. Jensen.

V. PUBLIC SERVICE

A. Funded Service (include consulting activities)

1. Government Agencies (Federal, State, Local):

2. Industrial and Commercial Groups, etc.

B. Unfunded Service to Governmental Agencies, Public Interest Groups, etc.

Science Advisor, New York State Fish and Wildlife Management Advisory Board:

- Meeting 29 Oct 2009, Ithaca, NY
- Meeting 23 April 2010, Cortland, NY

VI. PROFESSIONAL DEVELOPMENT

A. Professional Honors and Awards (for teaching, research, outreach, etc.)

B. 1. Activities in Professional Organizations (offices held, service as chairman, member, participant or consultant)

NY Chapter of The Wildlife Society, Vice-President

- Coordinated fall field meeting at Wanakena Ranger School (11-12 September 2009; 70 participants)
- Coordinated annual meeting in Alexandria Bay (11-12 March 2010; 84 participants)

ESF student chapter of The Wildlife Society, Faculty Advisor

2. Professional Society Membership

The Wildlife Society

- National member
- NY State Chapter member (and outgoing vice-president)
- Faculty Advisor to ESF student chapter

Society for Conservation Biology, lifetime member
Ecological Society of America, lifetime member

3. Other Professional Activities

a. Editorial activity

Journal (s)

Responsibility

Other (books, symposia, etc.)

b. Reviewer

Journal(s)

No. of manuscripts

Journal of Wildlife Management
Ecography
Philosophical Transactions of the
Royal Society B

1
1
1

Agency

No. of proposals

ESF – Committee on Research:
McIntire-Stennis pre-proposals
McIntire-Stennis full proposals
Seed grants

27
13
15

Other

c. Participation (workshops, symposia, etc.)

<u>Name of workshop, etc.</u>	<u>Date</u>	<u>Place</u>
Statistical methods for geographic and spatial data in the management of natural resources	3-5 Feb 2010	Montreal, Canada

C. Further Education/Re-training Undertaken, Leaves, Workshops, etc.

ESF Teaching / Mentoring Colloquium, January 2010, Syracuse

D. Foreign Travel (Where, When, Purpose)

Alberta, Canada, 14-28 August 2009, active but currently unfunded research program – consultation with colleagues and data analysis.

Montreal, Canada, 3-7 Mar 2010, participation in statistical workshop and consultation with research colleagues.

VII. ADMINISTRATIVE AND SERVICE RESPONSIBILITIES (include committee participation)

A. Department-level

- Mentor to two Cranberry Lake Undergraduate Research Fellowship students, Lynne Beaty and George Prounis who presented the following posters at the Spotlight on Student Research and Outreach:

“The effect of trails on salamander abundance: implications for trail management”, L. Beaty and J. Frair (awarded first place)

“Testing for the presence of necrophobic behavior in small mammals in Adirondack State Park, NY”, G. Prounis, J. Frair, and M. Schlaepfer (awarded third place)

- Mentor to UMEB student Tim McCoy
- Spring Open House – represented wildlife major (17 April 2010)
- Met individually with potential and accepted undergraduate students throughout the year
- Search Committee member – Wildlife faculty (spring-summer 2010)
- Coordinator of Betty Moore Chamberlaine Memorial Fund – graduate student scholarship
- Participant and presenter at EFB awards ceremony – 15 May 2010

B. College-level

- Member, Faculty Governance Executive Board
- Chair, Faculty Governance Committee on Research
- Member, Council on Geospatial Modeling and Analysis
- Attended Spring Banquet, 24 April 2010
- Champagne Barista, Champagne toast for graduating seniors, 12 May 2010
- Stage party member, Commencement, 15 May 2010

C. University-wide, including Research Foundation

- Submitted successful nomination for SUNY Chancellor's Award (Lynne Beaty)
- Science Advisor to NY Fish and Wildlife Management Advisory Board

VIII. SUMMARY OF SIGNIFICANT ACTIVITIES AND ACCOMPLISHMENTS DURING THIS REPORTING PERIOD, ESPECIALLY THOSE MOST NOTEWORTHY AND RELATIVE TO THE COLLEGE'S AND DEPARTMENT'S MISSION. One paragraph on each of the following would be most helpful: this past year, what have you done for our students, department/college, and self professionally? NOTE: The information in this section (along with the supporting specific information elsewhere in this report) should be your strongest case for being considered for a discretionary raise, which I'll continue to award based on your contributions to the department and college this reporting period.

For our students: This past academic year I know that I was a more effective mentor to both undergraduate and graduate students, both inside and outside of classes. This has come from trial and error, discussion with peers and personal mentors, and finding the time to invest in students on a more personal level. Significant milestones at the graduate student level include: 1) my first graduate student, Christina Boser, successfully completed her MS thesis and took a full-time job with the Nature Conservancy in California, 2) current MS students in my lab, Sara Hansen and Scott Warsen, successfully procured funding in support of their research, 3) my first Ph.D. student, Robin Holevinski, successfully completed her candidacy exam, and 4) the much improved "Tools of the Ecological Detective" course that I co-taught with Jesse Brunner that this year included a 3-hr lab component that helps students develop R programming skills. This course in particular makes a strong contribution to our graduate program, and I am pleased with its evolution (although some refinement is still required). Significant milestones at the undergraduate level include: 1) successful incorporation of three undergraduate TAs in my core wildlife course (who received rave reviews from the students for their knowledge of complicated analyses and software), 2) successful mentoring of two Cranberry Lake Research Fellows, Lynne Beaty and George Prounis, whose research posters earned first and third place at ESF's Spotlight on Student Research and Outreach, 3) supporting members of the student chapter of The Wildlife Society as they handily won first place in the NY State student quiz bowl competition, and 4) having written letters of recommendation for several students that are moving into graduate school and professional positions. Having now spent four complete years at ESF, there were many familiar faces at graduation. I take immense pleasure in having seen these students mature and watching them embark upon their professional careers. I am increasingly certain that I'm training these students to be competent and confident wildlife professionals. I look forward to seeing all they achieve. As my courses evolve and my teaching abilities mature, I appreciate having the ability to invest in students on a more personal level, which resulted in my successful nominations of two students, Lynne Beaty and John Vanek, for the SUNY Chancellor's Award and Outstanding Undergraduate Student Award (from the NY State Chapter of The Wildlife Society), respectively, and a comment on my undergraduate course review indicating that my "respect for students is unmatched."

For my department and the college: This year my departmental and college-level service was dominated by my service as the chair of the Faculty Governance Committee on Research (COR), and Vice-President of the NYS Chapter of The Wildlife Society (TWS). Being responsive to faculty and graduate student requests, this year the COR modified submission and review guidelines for two ESF-based funding competitions, sought faculty input on potential members of the McIntire-Stennis Public Advisory Board, and worked to better highlight graduate student research at the Spotlight on Student Research and Outreach event. We reviewed a total of 55 grant applications and are working on a fall showcase for McIntire-Stennis funded research that involves the new Public Advisory Board. The spotlight event this year showcased 41 undergraduate posters, 71 graduate student posters, and additionally included (for the first time) 6 oral presentations by graduate students. We worked with the GSA Professional Development Committee to secure funding for graduate student awards, coordinate the judging of student posters, and run the oral presentation session. This was a successful collaboration that will hopefully continue in the years to come. ESF was well represented this year

at NYS TWS events, which included a fall field meeting at the Wanakena Ranger School and the annual meeting in Alexandria Bay. I worked with the ESF Alumni Association to host a student-professional mixer and poster session at the annual meeting, and instituted new awards for an outstanding wildlife graduate student and student presentations at the annual meeting. This year my own graduate student, Robin Holevinski, won both the outstanding student and best poster award.

For myself professionally: This year I've worked to bring several papers to fruition that stemmed from a workshop on GPS applications in wildlife research (2009; Trento, Italy). A total of five co-authored review papers are the result, currently in press for a special issue of the Philosophical Transactions of the Royal Society B. I've also initiated new research collaborations (with Mark Teece at ESF and Luke Hunter at Panthera), as well as investing significant effort in data analyses from ongoing collaborations (notably for work on elk and wolves in Alberta). As a result of ongoing collaborations I participated in a workshop at the national Institute for Complex Data Structures in Montreal that focused on "Statistical Methods for Geographic and Spatial Data in the Management of Natural Resources" and for which my ongoing research in Alberta was highlighted (and presented by a co-author).

IX. A. FUTURE PLANS, AMBITIONS, AND POTENTIAL CONTRIBUTIONS FOR YOUR OWN PROFESSIONAL DEVELOPMENT AND THE ENHANCEMENT OF THE PROGRAM IN ENVIRONMENTAL AND FOREST BIOLOGY (brief summary)

This summer I plan to complete papers stemming from ongoing collaborations, work towards publishing research I initiated in NY since coming to ESF, and develop proposals to fund new research initiatives both in NY and internationally. This fall I'll be taking on a new Ph.D. student, Allison Devlin, who will be studying jaguar in South America. Allison's project represents a new international research effort for me and formalizes a developing research and student mentoring partnership between Panthera (a non-profit organization) and ESF. (So I'll be investing time in gaining some level of fluency in Spanish this year.) This fall I'll also be delivering my Landscape Ecology course for the third time and am re-casting it to serve as an advanced GIS skills course that serves both advanced undergraduates and incoming graduate students. I feel this will better fill the vacant niche for introductory GIS courses at a grad level here and will thus better serve the ESF community. And I continue to work with colleagues at the University of Alberta to develop a publishable manual for Landscape Ecology lab exercises. On a more fun note - this year students in my lab are undertaking statewide surveys of coyote populations and in the coming year we'll produce a statewide population estimate for coyotes, which should certainly result in a lot of press.

B. PROJECTED ACTIVITIES FOR NEXT YEAR

1. Summer 2009

a. Course(s) to be offered

EFB 496, Wildlife Techniques

b. Proposed research activity

- Publish long-term study of elk in Alberta, and coyote genetics work in NY
- Develop new grant proposals
- Supervise graduate and undergraduate student research programs
- Initiate new research program in Mexico in collaboration with S. Diemont

c. University, professional society, and public service

Revamp GIS labs for fall course

2. Fall Semester 2009

a. Course(s) to be offered

EFB 796, Landscape Ecology
EFB 797, Graduate seminar in Wildlife

b. Proposed research activity

- Supervise graduate student research programs
- Prepare manuscripts for publication

c. University, Professional society, and public service

Chair, Faculty Governance Committee on Research
Science Advisor, NY State Fish and Wildlife Management Advisory Board
Faculty Mentor, ESF student chapter of The Wildlife Society

3. Spring Semester 2010

a. Course(s) to be offered

EFB 491, Applied Wildlife Science
EFB 797, Graduate seminar in Wildlife

b. Proposed research activity

- Supervise graduate student field research and lab projects
- Prepare manuscripts for publication
- Prepare S. Hansen for MS defense.

c. University, professional society, and public service

Chair, Faculty Governance Committee on Research
Science Advisor, NY State Fish and Wildlife Management Advisory Board
Faculty Mentor, ESF student chapter of The Wildlife Society